SHEFFER, A.; KONCHAKOV, G.; VEGER, L.

Continuous action apparatus for the quick freezing of ravioli.
Mias. ind. SSSR 33 no.4:20-22 '62.   (MIRA 17:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut myasnoy
promyshlennosti (for Sheffer, Konchakov). 2. Khar'kovskoye
opytno-konstruktorskoye byuro torgovogo mashinostroyeniya (for
Veger).

GOLOVKIN, N.A., prof.; CHIZHOV, G.B., prof.; IL'CHENKO,S.G.,kand.tekhn.nauk,
    retsenzent; SHEFFER,A.P.,kand.tekhn.nauk,retsenzent; MASLOVA,Ye.F.,
    red.; MAMONTOVA,N.N.,tekhn.red.
    [Refrigeration technology for food products]Kholodil'naia tekh-
    nologiia pishchevykh produktov. 2., dop. i perer. izd. Moskva,
    Gosgorgizdat, 1963. 240 p.   (MIRA 16:3)
                (Food—Preservation)

SHEFFER, A.P.

Present sate and prospects of the development of refrigeration
in Kazakhstan. Khol.tekh. 40 no.5:1-3 S-O '63.   (MIRA 16:11)

1. Zamestitel' predsedatelya Soveta narodnogo khozyaystva Kazakhs-
koy SSR.

SHEFFER, A.P., kand.tekhn.nauk

Improved technology and equipment for meat refrigeration in meat
combines. Khol.tekh. 41 no.1:30-36 Ja-F '64.   (MIRA 17:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut myasnoy promysh-
lennosti.

SHEFFER, A.F., kand. tekhn. nauk; SAATCHAN, A.K., kand. biol. nauk

[Technology and equipment for intensive meat refrigerating used in foreign countries] Tekhnika i tekhnologiia intensivnogo okhlazhdenija miasa za rubezhom. Moskva, TSentr. in-t nauchno-tekhn. informatsii pishchevoi promyshl., 1964. 86 p.
(MIRA 18:4)

ACC NR: AP6018959   (A)   SOURCE CODE: UR/0066/66/000/006/0035/0037

AUTHOR: Tsintsadze, T. D.; Sheffer, A. P. (Candidate of Technical Sciences) 24
B

ORG: All-Union Scientific Research Institute of the Meat Industry (Vsesoyuznyy nauchno-issledovatel'skiy institut myasnoy promyshlennosti)

TITLE: Change in the quality of quick-frozen semifinished pork products

SOURCE: Kholodil'naya tekhnika, no. 6, 1966, 35-37

TOPIC TAGS: pork, food preservation, freezing, PACKAGING TECHNIQUE, FOOD

ABSTRACT: Changes in the quality of quick-frozen pork fillets during their cold storage were studied by determining the effect of packaging methods, equipment and methods of packing, temperature conditions, and duration of storage on the organoleptic indices. The temperature conditions were found to have a greater effect than the packing methods. Quick-frozen pork fillets packed individually or in lumps had organoleptic indices equal to those of refrigerated fillets, and the consistency of frozen fillets was better than that of refrigerated ones. The quality of quick-frozen semifinished products wrapped in moisture-proof polymer materials (polyethylene, laminated cellophane-polyethylene films) does not decrease after several months of storage. The normal storage period for high-quality semifinished portioned products wrapped individually in polyethylene at -18°C is six months; for products in lumps at -18°C and

Card 1/2   UDC: 637.52.037:5.004.4

ACC NR: AP6018959   O

vacuum-packaged portioned products at -18°C,. eight months; for portioned products in
polyethylene at -28°C, ten months, and when vacuum-packaged, one year.   Orig. art.
has: 3 figures and 1 table.

SUB CODE: 06/ SUBM DATE: none

Card 2/2 ЦС.

VISHNYAK, M. M., kand. med. nauk; UMBET'YAROVA, G. G., mlad. nauchn.
    sotrud.; RAKHIMOVA, G. K., mlad. nauchn. sotrud.; GUTERMAKHER,
    TS. M., mlad. nauchn. sotrud.; BASARGIN, P. S., mlad. nauchn.
    sotrud.; SHEFFER, A. R., mlad. nauchn. sotrud.

Results of bicillin therapy of syphilis in Alma-Ata. Vest. derm.
i ven. 36 no.6:57 Je '62.   (MIRA 15:6)

1. Iz Kazakhskogo nauchno-issledovatel'skogo kozhno-venerologi-
cheskogo instituta (dir. - kandidat meditsinskikh nauk M. O.
Omarov)

        (BICILLIN)   (ALMA-ATA—SYPHILIS)

15-57-1-358

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 1,
                    p 55 (USSR)

AUTHORS: Latyshova, M. G., Sheffer, N. D.

TITLE: The Potentials of Induced Polarization in Finely
                Dispersed Sandy Clay Rocks (K voprosu o potentsialakh
                vyzvannoy polyarizatsii tonkodispersnykh peschano-
                glinistykh porod)

PERIODICAL: Tr. Moskovsk. neft. in-ta, 1955, Vol 12, pp 159-169.

ABSTRACT: Samples of sandy clay rocks were selected from the
                Groznyy oil field and divided into 16 fractions
                according to particle size. The measurement of
                potentials of induced polarization was made by standard
                methods. The results show that the value of induced
                activity increases in finely dispersed fractions. In
                order to study the total influence of all the fractions
                in the rocks on their activity, the specific surface
                area of each rock was calculated. Comparisons of the
Card 1/2   data obtained showed that the activity increases in

Sheffer, N. D

USSR/Physics of the Earth - Geophysical Prospecting, O-5

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 36469

Author: Latyshova, M. G., Sheffer, N. D.

Institution: None

Title: On the Problem of the Potential of Induced Polarization of
Thinly-Dispersed Sand-Clay Rocks

Original
Periodical: Tr. Mosk. neft. in-ta, 1955, No 15, 159-169

Abstract: The character of the dependence of the induced electrochemical
activity on the degree of the dispersion of mountain rocks is de-
termined. It was established that the electrochemical activity
increases in proportion with the specific surface. At the same
time, the electrochemical activity of clays is nearly zero. Ex-
periments performed with artificial specimens of cores made of
"gumbrin" /special clay found in Georgian SSR/, "kil" /bleaching
clay found in Crimea/, kaolin, tripoli earth, etc, have shown
that artificial thinly-dispersed clays may produce a considerable

Card 1/2

USSR / Electricity   G

Abs Jour   : Ref Zhur - Fizika, No 4, 1957, No 9649

Author   : Shefer, N.I.
Inst   : Not given
Title   : Concerning the Problem of Aging of Dielectrics.

Orig Pub   : Uch. zap. Chklovskovo, ped. in-ta, 1956, vyp. 9, 277-284

Abstract   : The behavior of $BaTiO_3$ in fields prior to breakdown and at
              breakdown was investigated at high temperature (100 -- 150°).
              It was established that the electric strength E_{lim} is incre-
              ased by 1.3 three times and in individual cases by 1.5 ti-
              mes. Results are given on three variants of experiments. (1)
              A field E = 9000 v/cm was switched off during the instant
              of a sharp rise in the breakdown current, the specimen was
              cooled within two hours, and was left for 36 hours at room
              temperature. When the previous experimental conditions were
              restored, no increase in current was observed. Increasing

Card   : 1/3

USSR / Electricity   G

Abs Jour   : Ref Zhur - Fizika, No 4, 1957, No 9649

Abstract   : E to 12000 v/cm and a change in its polarity also did not
              lead to an increase in current. From measurements of the e-
              lectric conductivity it was established that along with the
              strengthening, there is also an increase in the activation
              energy W by a factor of 1.6. The strengthening was ponta-
              neous. (2) An observation was made of the time dependence
              of E_{lim}. It was established that W increases and that
              strengthening takes place under the direct action of E. (3)
              A potential $E < E_{lim}$ (800 v/cm) was applied to the specimen
              and at this voltage the increase in current was terminated
              by saturation. In the case the strengthening took place
              after a 10 -- 15 hour exposure of the specimen under voltage.
              The increased E_{lim} was maintained for several days. No lon-
              ger verification was carried out. The observed variations

Card   : 2/3

USSR / Electricity   G

Abs Jour   : Ref Zhur - Fizika, No 4, 1957, No 9649

Abstract   : are explained by the presence of two processes: (1) From t he
             instant that E is applied at a high temperature the specimen
             is polarized, there is an accumulation of the space charge
             which distorts the lattice and reduces W. (2) Subsequent mo-
             re rational redistribution of the space charge leads to an
             increase in W and to a strengthening of the dielectric.

Card   : 3/3

L 04556-67
ACC NR: AP6021262   (A)   SOURCE CODE: UR/0066/66/000/003/0032/0037

AUTHOR: Sheffer, A. P. (Candidate of technical sciences)

ORG: All-Union Scientific Research Institute of the Meat Industry (Vsesoyuznyy nauch-no-issledovatel'skiy institut myasnoy promyshlennosti)

TITLE: Rapid meat refrigeration process

SOURCE: Kholodil'naya tekhnika, no. 3, 1966, 32-37

TOPIC TAGS: refrigeration equipment, food preservation

ABSTRACT: The so-called air shower method refrigerating of meat is described. The principle of this method lies in forcing cold air through nozzles placed above the suspended meat in a cooling chamber in crisscross position so that a cone of cold air covers the entire surface of the suspended side of meat. Since the air streams have a greater velocity at the top than on the bottom, the sides of meat are hung with the fat portion up in order to obtain a uniform cooling effect. Using Biot and Fourier criteria of fluid dynamics, it is possible to calculate the velocity of cold air for a desired cooling temperature. The experiments show that for the optimum performance (with minimum energy loss) of the system the diameter of the nozzle should be 50 mm with at least 6 nozzles in crisscross position placed within a space of one meter. During the experiments, the difference of air temperature between the top and the bottom in the

UDC: 637.513.82

Card 1/2

L 04556-67
ACC NR: AP6021262

cooling chamber was not greater than 2°C. With the application of the new cooling sys-
tem, it is possible to cool 83 kg of beef to 10°C within 8-10 hrs and to 4°C within
10-14 hrs. The air speed during this cooling process was 1.3 m/sec on the meat sur-
face. It was also shown that cooling by this new method requires almost half of the
time needed by the conventional system and hence reduces costs considerably. Orig.
art. has: 3 figures, 6 tables.

SUB CODE: 13,06/   SUBM DATE: none/   ORIG REF: 007

Card 2/2

GUSEVA, A.M.; SHEFFER, V.V., SHIN, P.V.; ZHURIN, A.B.; TIKHONOV, N.P.;
        KLYUSHKIN, P.A.; PUL'SON, B.Kh.

Local information. Zashch. rast. ot vred. i bol. 8
no.10:59-60 0 '63.   (MIRA 17:6)

SHEFER, Ya.G.

Morphological structure of the surface of the lower Irtr' Valley.

Vest. MGU 20 no.15 '65 34- ... suggested ..ereg-till no.5?30-98

(MIRA 18:10)

SHEFER, V.F., kapitan meditsinskoy sluzhby

Use of steam boilers for sterilization.   Voen.med.zhur.   no.3:91
'59.   (MIRA 12:6)
                            (BOILERS)

SHISH, V.N., gornyy inzh.; SHEFIR, N.M.

Pneumatic portable winch with a load capacity of 150 kg. Gor.zhur.
no.5:73 My '60.   (MIRA 14:3)

1. Institut Giprorudmash, Krivoy Rog.
                    (Winches)

VARFOLOMEYEVA, Ye.K.; BOROVA, A.I.; SHEFFLER, V.F.

Photochlorination of acetic acid and acetic anhydride in the presence of organic peroxides. Zhur.prikl.khim. 38 no.11:2612-2611 N '65.   (MIRA 18:12)

1. Krivorozhskiy pedagogicheskiy institut. Submitted April 11, 1964.

SHEFKIND, M. D.

SHEFKIND, M. D.   Economizing Electric Energy in Coal Mines (Ekonomiya Elektroenergii
                   v Ugol'nykh Shakhtakh), pp. 7-9

The author discusses ways and means of reducing the amount of electric energy used by
the coal mines. Several mines are mentioned. (Tables).

SO: PROMYSHLENNAYA ENERGETIKA, No. 11, Nov. 1952, Moscow (1613006)

CHEVKIN, V. N., ENG.

Electric Transformers

Laicing Transformer foundations to make shifting them easier. Elek. sta.23, no.8, 1952

Monthly List of Russian Accessions, Library of Congress, November 1952, UNCLASSIFIED

9. Monthly List of Russian Accessions, Library of Congress, _____ 1953. Unclassified.

BERGER, A.Ya., professor; SHEFKIND, M.D., inzhener; SOLDATCHENKO, G.F.,
   inzhener.

Increasing the capacity coefficient of electrical installations in
industrial enterprises. Elektrichestvo no.1:73-76 Ja '54.
                                                    (MLRA 7:2)

1. Kemerovenergo (for Shefkind). 2. Chelyabinskugol' (for Soldat-
                                        (Electric engineering)
chenko).

Shefkind, M D.

AID P - 2067

Subject   : USSR/Electricity

Card 1/1 Pub. 26 - 9/29

Authors   : Nebrat, L. Ye., and Shefkind, M. D., Engs.

Title   : Raising the power factor of the auxiliary installations
              of power stations

Periodical: Elek. sta., 4, 33-34, Ap 1955

Abstract   : The authors discuss the necessity of improving the power
              factor of auxiliary circuits which usually varies between
              0.72 and 0.75. The authors mention that the power factor
              in the industrial networks sometimes reaches a value of
              0.882. The economic and technical factors are also
              discussed.

Institution: None

Submitted : No date

SHEFKIND, M.D., inzhener.

Reducing personnel in electric power stations. Elek.sta.28 no.1:72-
74 Ja '57.   (MLRA 10:3)
        (Electric power plants)

USSR/Pharmacology. Toxicology. Chemotherapeutic Drugs. E) Sulfon-
           amides.

Abs Jour : Ref Zhur - Biol., No II, 1958, No 52112

Author   : Shefler M., Mintzer L.
Inst   :
Title   : A Study of the Action of Sulfathiazole on S. Typhi Murium.

Orig Pub : Zn. mikrobiol., epidemiol. i immunobiologii, 1957, No 5,
           96-98

Abstract : The antisulfonamide action of a series of amino-acids, ami-
           des purines, pyrimidines and some other drugs, in relation
           to S. typhi murium, was demonstrated for methionine, less
           marked- for glutamic acid, glutamine and uracil. Xanthine
           and particularly adchine, intensified the action of sul-
           fathiazole (I). PABA, the alkaline hydrolysate of folic
           acid, peptone water and bouillon also showed antagonistic
           action to sulfonamides. Passage of cultures, in the pres-
           ence of increasing concentrations of I, in a synthetic
           mineral medium with the addition of methionine, PABA or

Card   : 1/2

SHEFLER, S.; MINTZER, L.

Effect of sulfathiazole on Salmonella typhimurium. Zhur.mikrobiol.
epid. i immun. 28 no.5:96-98 My '57.   (MLRA 10:7)

1. Iz Instituta epidemiologii i mikrobiologii I.Kantakuzino
(Bukharest)
        (SULFATHIAZOLE, eff.
            on Salmonella typhimurium)
        (SALMONELLA, eff. of drugs on
            typhimurium, eff. of sulfathiazole)

Shefler, S.

SHEFLER, S.; MINTSER, L.; BERESH, S.

Obtaining attenuated and immunogenic strains of Enterobacteriaceae.
Zhur.mikrobiol.epid. i immun. 28 no.8:8-14 Ag '57.   (MIRA 11:2)

1. Iz laboratorii po izmenchivosti mikrobov Instituta imeni
I.Kantakuzino (Bukharest)
          (BACTERIA,
               Enterobacteriaceae, attenuated & immunogenic strains (Rus))

17 (4)
AUTHORS: Shefler, S., Mintser, L.   SOV/20-128-4-54/65

TITLE: The Effect of Nutrient Concentration on the Fermentation of
                  Lactose by Salmonellae

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 4, pp 830-832
                  (USSR)

ABSTRACT: The authors wanted to find out whether the rule found by them
                  according to which the saccharose concentration favors the
                  occurrence and the quantity of the saccharose fermenting
                  yeasts (Ref 1) governs also other biological models. For this
                  purpose the above topic was investigated. This fermentation
                  proceeds rather easily by different Salmonellae species
                  following a previous cellobiose fermentation. The fermentation
                  was carried out by the sowing of cellobiose-positive variants
                  on a half-synthetic lactose-containing medium. The lactose-
                  positive variants were then isolated or a museal strain was
                  sown on a mixture of 0.05% cellobiose and 0.5% lactose. First
                  cellobiose, then lactose fermented. The authors used the
                  strains: Salmonella stanley, S. heidelberg, S. glostrup, and
                  S. minnesota. Table 1 shows the results obtained. Table 2
Card 1/3   explains the duration of fermentation in days after the

SOV/20-128-4-54/65

The Effect of Nutrient Concentration on the
Fermentation of Lactose by Salmonellae

addition of 10 lactose-positive cells. The results obtained
show that the lactose concentration directly influences the
rate of occurrence of the lactose-positive variants of the
Salmonellae investigated. The effect of the lactose is here
apparently specific, for the saccharose does not exercise any
influence in equal concentrations. The lactose effect on other
phenomena of the microbe variability should be investigated
(resistance to chemotherapeutic substances and bacteriophages,
biochemical changes, etc) in order to prove the specificity
of the lactose effect. In the case of cellobiose neither the
increase of the lactose concentration nor the increase of the
cellobiose quantity influenced the rate of occurrence of the
cellobiose-positive variants. In conclusion, the authors
state that they succeeded in observing a direct influence of
the substrate concentration on the frequence of occurrence of
the lactose-positive variants of Salmonellae. This agrees
with the results obtained by experiments with yeast. There
are 2 tables and 3 references, 1 of which is Soviet.

Card 2/3

The Effect of Nutrient Concentration on the
Fermentation of Lactose by Salmonellae

SOV/20-128-4-54/65

ASSOCIATION: Institut im. Kantakuzino Bukharest, Rumyniya (Institute
               imeni Kantakuzino, Bukarest, Romania)

PRESENTED: April 29, 1959, by T. D. Lysenko, Academician

SUBMITTED: April 25, 1959

Card 3/3

SOBOLEV, N.A.; SHEFOV, A.S.; TOLMASOVA, V.N.

Near-the-threshold spectral sensitivity region of silver-oxygen-cesium photocathodes and its relation to the structure of the photosensitive film. Izv.AN SSSR. Ser.fiz. 26 no.11:1370-1376
N '62.
(MIRA 15:12)
(Cathodes) (Photomicrography) (Spectrum analysis)

SHEFOV, A.S.; LISINA, G.A.

Some possibilities for raising the sensitivity of multi-alkali
photocathodes by optical means. Izv.AN SSSR. Ser.fiz. 26 no.11:
1392-1395 N '62.
    (MIRA 15:12)
    (Cathodes)   (Photoelectricity)

L 12920-65   EWT(1)/EWG(k)/EEC(t)   Pz-6   IJP(c)   AT   ASD(a)-5/AFMD(t)/
ACCESSION NR: AP4045297   SSD/AFWL/PAEM(a)/ESD(dp)/   S/0048/64/028/009/1444/1449
                            ESD(gs)/ESD(t)

AUTHOR: Kondrashov, V.Ye.; Shefov, A.S.   B

TITLE: A method for determining the optical constants and thickness of semitrans-
parent layers. Optical constants of a multi-alkali photocathode. Report, Tenth Con-
ference on Cathode Electronics held in Kiev, 11-18 Nov 1963

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.28, no.9, 1964, 1444-1449

TOPIC TAGS: absorption coefficient, refractive index, thin film, photocathode, ab-
sorption band

ABSTRACT: A method is described for measuring the thickness and optical constants
(refractive index and absorption coefficient) of an absorbing layer on a transpar-
ent support. The measurements are to be performed by the three-intensity method of
D.Male (Ann.Physik 12e Ser.9,10,1954) at wavelengths for which the absorption is
sufficient to enable the method to give accurate results, and by the two-intensity
method of H.Murmann (Z.Phys.80,161,1932) at other wavelengths. The thickness of the
film obtained from the three-index measurements is to be used in the reduction of
the two-index measurements. The tedious graphical computations required to extract

1/3

L 12920-65
ACCESSION NR: AP4045297   2

the optical constants and thickness from the measured reflection and transmission
coefficients are described in detail. The thickness and optical constants of a ser-
ies of sensitive multi-alkali photocathodes containing Sb, K, Na and Cs were mea-
sured by the proposed method. The photocathodes ranged in thickness from 232 to 350
Å and the measurements were extended over the wavelength range from 4000 to 8500 Å.
The results obtained from the two- and the three-intensity methods at the shorter
wavelengths are compared and found to be in good agreement. The reflection coeffi-
cient of a 232 Å layer on an aluminum surface was calculated over the full wave-
length range from the measured optical constants of a similar layer on glass and
the known optical constants of aluminum. Excellent agreement was obtained. Concern-
ing the multi-alkali photocathodes, it is concluded that they are most sensitive
when they are from 300 to 350 Å thick, that they have a single absorption band in
the region of greatest sensitivity, and that the absorption coefficient is indepen-
dent of thickness. Concerning the proposed measurement procedure, it is concluded
that it is applicable provided there is an accessible region of wavelengths in
which the absorption coefficient is greater than 0.5. "In conclusion, we take the
occasion to express our deep gratitude to A.Ye.Melamid, Candidate in Technical Sci-
ences, for a number of valuable suggestions during the course of the work, and to
Ye.V.Fursova for assistance in calculating the theoretical curves." Orig.art.has:

2/3

L 12920-65
ACCESSION NR: AP4045297

18 formulas, 7 figures and 3 tables.

ASSOCIATION: none

SUBMITTED: 00

SUB CODE: OP,EC

NR REF SOV: 005

ENCL: 00

OTHER: 002

3/3

L 12039-65   EWT(1)/EWG(k)/EWT(m)/EPA(sp)-2/EPF(n)-2/EPA(w)-2/T/EWA/EWP(b)
Pz-6/Pab-10/Pu-4   IJP(c)/BSD/ASD(f)-2/AEDC(a)/AFETR/SSD/AFWL/RAEM(i)/ESD(gs)/
ACCESSION NR: AP4045299   ESD(t)   JD/JG/AT   8/0048/64/028/009/1454/1460

AUTHOR: Soboleva, N.A.; Korolev, V.Ye.; Shefov, A.S.

TITLE: Investigation of the residual gas composition in vacuum tubes with multi-alkali cathodes /Report, Tenth Conference on Cathode Electronics held in Kieve 11-18 Nov 1963/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.28, no.9, 1964, 1454-1460

TOPIC TAGS: photocathode, fatigue, gas absorption, gas formation, mass spectrometry, aging

ABSTRACT: The composition of the residual gas in vacuum tubes containing multi-alkali cathodes was determined as part of an investigation of the processes of aging and fatigue in these tubes. An omegatron, a high frequency magnetic mass spectrometer with a sensitive element of small volume, was employed. A number of difficulties were encountered in the measurements, and these, and the means by which some of them were partly overcome, are discussed at length. The multi-alkali cathodes proved to be excellent gas absorbers, and special means (e.g. a titantium getter) had to be employed to improve the vacuum in the sensitive element of the omegatron.

1/3

L 12039-65
ACCESSION NR: AP4045299

The alkali metal vapor pressure could not be measured with the omegatron; it was, indeed, necessary to protect the omegatron from alkali metal vapor during the preparation of the cathodes. The principal constituents observed in the residual gas were N_2, CO, CH_4, A, Ne and sometimes CO_2 and H_2O. The active gases CO, CO_2, H_2O and CH_4 were strongly absorbed by the photocathode with an accompanying change (usually deleterious) in sensitivity. The loss in sensitivity during storage was found to be accompanied by a decrease in the pressure of these gases. Any operations that led to an increase in the pressure of the active gases (and these included sealing off the glass stem) led also to reduction of the photocathode sensitivity. Applying a potential to the electrodes without drawing a current produced only a small change in the composition of the residual gas. When current was drawn, the H_2O and CH_4 pressures increased reversibly. It is suggested that the evolution of these gases may be due to local heating of the cathode by the photocurrent. It is concluded that at least one reason for the loss of sensitivity of multi-alkali photocathodes during storage is the gradual absorption of CO, CO_2, H_2O and CH_4 by the cathode, but that these gases are not involved in the fatigue process. It is suggested that fatigue may be due to a redistribution of the alkali metals between the cathode and other parts of the instrument. Orig.art.has: 3 figures and 1 table.

2/3

L 12039-65
ACCESSION NR: AP4045299

ASSOCIATION: none

SUBMITTED: 00

SUB CODE: EC , GP

NR REF SOV: 001

ENCL: 00

OTHER: 000

$\mathcal{O}$

3/3

VARFOLOMEYEVA, Ye.K.; BOTOVA, A.S.; SHEFLER, V.F.; ZORICH, N.F.

Chemistry evening on the topic "Metals and alloys." Khim. v shkole
17 no.2:64-70 Mr-Ap '62.   (MIRA 15:3)

1. Pedagogicheskiy institut, g. Ul'yanovsk.
          (Chemistry--Study and teaching)(Metals)

SHEFOV, N. N., MIRONOV, A. V. and GALPERIN, Y. I.

"Spectographs for the Study of Atmospheric Emission During the I.G.Y. of 1957-1958," paper read at the 7th International Astrophysical Colloquium, Liege, 12-14 Jul 1956.

A short description of spectographs of large focal ratios for studies of the night sky and aurorae is given.

SO: 568946

MIRONOV, A.V.; SHEFOV, N.N.

  Observation of the auroral spectrum near Moscow. Astron.zhur.
  33 no.5: 715-716 S-O '56.   (MLRA 9:12)

  1. Institut fiziki atmosfery Akademii nauk SSSR.
    (Auroras--Spectra)

SHEFOV, N.N.

Spectrographs to be used for investigations of atmospheric emission during the International Geophysical Year of 1957-8. G. I. Galperin, A. V. Mironov, and N. N. Shefov. Mem. soc. roy. sci. Liège 18, 68-9(1957).—A short description of 3 spectrographs which will be used for upper atm. investigations during the International Geophys. Year. These instruments will cover the spectral region from 3000 A. to 11,000 A. ————————— Harry C. Allen, Jr.

SHEFOV, N.N.

Investigating border effects in photographic images of bright
objects. Soob.GAISH no.101/102:66-73 '57.   (MIRA 12:1)
(Astronomical photography)

SOV/ 4 9-58-12-12/17

AUTHORS: Mironov, A. V., Prokudina, V. S. and Shefov, N. N.

TITLE: Low Latitudinal Polar Aurora January 21-22, 1957
(Nizkoshirotnoye polyarnoye siyaniye 21-22 Yanvarya 1957 g)

PERIODICAL: Izvestiya akademii nauk SSSR, seriya geofizicheskaya,
1958, Nr 12, pp 1514-1516 and 1 plate (USSR)

ABSTRACT: A strong magnetic storm took place during the night
January 21-22, 1957. A series of observations were made by
the Institute of Atmospheric Physics at its station near
Moscow. The aurora spread from 15^0 above the horizon shortly
after midnight (Fig.1) to 70^0 during one hour (Figs.2 and 3).
The photographs of the spectrum directed at 25^0 were taken,
which show the lines of oxygen, nitrogen and hydrogen (Figs.
4 and 5). The data are shown in the table on p 1514 in the
following order: identification, λ measured, λ theoreti-
cal, transition, intensity (spectrum 1 and 2), blended bands
and their intensities. The determination of H_α was very
complicated due to the interference in the bands 6.3 and 7.4.

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SOV/ 49-58-12-12/17

Low Latitudinal Polar Aurora January 21-22, 1957

However, it was possible to establish its velocity as
$v = \pm 500$ km/sec, and the maximum intensity 28.4. There are

5 figures, 1 table and 4 references; 2 of the references are
Soviet and 2 are English.

ASSOCIATION: Akademiya nauk SSSR, institut fiziki atmosfery,
Zvenigorodskaya nauchnaya stantsiya (Academy of Sciences,
USSR, Institute of Physics of the Atmosphere, Zvenigorod
Scientific Station)

SUBMITTED: December 2, 1957.

Card 2/2

84576

S/035/60/000/009/009/016
A001/A001

3.1810

Translation from: Referativnyy zhurnal, Astronomiya i Geodeziya, 1960, No. 9,
r. 68, # 9074

AUTHORS: Mironov, A.V., Prokudina, V.S., Shefov, N.N.

TITLE: The Observation of Aurora Polaris on February 10-11, 1958, near
             Moscow

PERIODICAL: V sb.: Spektr, elektrofotometr. i radiolokats. issled- polyarn.
             siyaniy i svecheniya nochn. neba, No. 1, Moscow, AN SSSR, 1959,
             pp. 20-24 (Engl. summary)

TEXT: The authors describe the aurora polaris on February 10-11, 1958,
which was characterized by a high brightness and a large glow area, as well as
by a brief appearance of a radiative arc in zenith. The aurora polaris was ac-
companied with a strong magnetic storm. The spectra of this aurora polaris at
bands $\lambda\lambda$ 3,400-6,600 (dispersion $\sim$ 85 A/mm), $\lambda\lambda$ 8,000-9,400, 9,800-11,200 (dis-
persion $\sim$150 A/mm) and $\lambda\lambda$ 3,500-6,600 (dispersion $\sim$320 A/mm) were obtained at
the Zvenigorod station of the Institut fiziki atmosfery (Institute of Physics of

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84576
S/035/60/000/009/009/016
A001/A001

The Observation of Aurora Polaris on February 10-11, 1958, near Moscow

Atmosphere) of AS USSR. A spectrogram exposed from 19^h35^m to 6^h00^m was cited. Emissions were discovered in the spectrum, characteristic for an intense low-latitude aurora, pertaining to N_2^+, NI, NII, OI, OII. A characteristic feature of this spectrum is the absence of the first and second positive nitrogen systems which are often observed in spectra of high-latitude auroras, and a clear display of atomic lines over the background. Relative intensities of emissions are presented. R, Q and P-branches of the OH-band (5,2) are seen on the spectrogram. In this aurora, the line λ 10,830 (Q-branch) is more intense than the R-branch by 9 times; their ratio exceeds by a factor of 3 the mean ratio between the Q- and R-branches in the night sky glow. It can be concluded from the R-branch of the (5,2) band and from other bands of OH, such as (4,1), (9,5), (6,1), (9,3) and (8,2), that hydroxyl emission in this spectrum is weaker in comparison with other nights. The authors assume that there is an emission in the line λ 10,830, which is connected with the aurora polaris and caused by the emission of HeI (2^3S - 2P transition) from the 20.87-ev level. The profile of emission λ 10,830 is given; its half-width coincides with the instrumental one and is equal to 9 A. There are 9 references.

F.K. Shuyskaya

Translator's note: This is the full translation of the original Russian abstract.
Card 2/2

S/169/60/000/007/007/016
A005/A001

Translation from: Referativnyy zhurnal, Geofizika, 1960, No. 7, pp. 199-200,
8449

AUTHOR: Shefov, N.N.

TITLE: Intensities of Certain Emissions of the Twilight and Night Sky

PERIODICAL: V sb.: Spektr. elektrofotometr. i radiolokats. issled. polyarn.
            siyaniy i svecheniya nochn. neba. No. 1, Moscow, AN SSSR, 1959,
            pp. 25-29 (Engl. summary)

TEXT: Results of spectral observations of the airglow in the visible and
infra-red spectral regions are described; the observations were carried out in
1957 at the Zvenigorod station. The intensity distribution in the airglow con-
tinuum was obtained for the region of $\lambda 5200-6600$ Å. The average intensity of
the continuum amounts in this region to about 3 Rayleigh Å in the zenith. The
continuous emission of the twilight sky was studied at $\lambda 3900-4700$ Å; the emis-
sion has several maxima and its total intensity amounts in this section to about
0.5 erg/cm^{2}sec. The measured average absolute intensities of the emission $\lambda 5577$
and $\lambda 6300-6364$ are essentially higher than the values of these intensities

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89765
S/169/61/000/002/019/039
A005/A001

3,1800 (1041, 1062, 1178)

Translation from: Referativnyy zhurnal, Geofizika, 1961, No. 2, p. 34, # 2G253

AUTHOR: Shefov, N. N.

TITLE: The Intensities of Certain Emissions of the Night Sky

PERIODICAL: V sb.: Spektr., elektrofotometr. i radiolokats. issled. polyarn.
             siyaniy i svecheniya nochnogo neba". No. 2-3. Moscow, AN SSSR, 1960,
             pp. 57-59 (English summary)

TEXT: The absolute intensities of certain emissions of the night sky were
determined from the spectra obtained in 1957-1958 at Zvenigorod. The observations
were carried out with spectrographs with a dispersion of 320 Å/mm in the direction
to North at an angle of 30° to the horizon. The absolute calibration was carried
out with the aid of a standard lamp and the phosphor. The transmittance of the
atmosphere was not taken into account quantitatively. Only such spectra were
selected for processing which were obtained in nights with good transmittance.
The distribution of intensity over the continuous spectrum was determined from
the spectrograms obtained by the patrol spectrograph in the range of λ 4,000 -
6,500 Å in moonless nights with good transmittance. A correlation was stated

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89765

The Intensities of Certain Emissions of the Night Sky   3/169/61/000/002/019/039
                                                           A005/A001

between the intensities in three sections of the continuous spectrum: λ 4,700, 5,300, and 6,000 $\overset{\circ}{A}$. The investigation of the correlation mentioned points out the existence of two emission sources of the continuous spectrum. The maximum in the violet band may be caused by diffuse light, and the maximum in the red band by the radiation of the atmosphere proper. The intensities of 13 bands of OH, within the range of λ 5,300 - 11,500 $\overset{\circ}{A}$ were investigated. Their total intensity varies from 3.10^4 to 5.10^4 Rayleigh. The comparison of the measured probability ratios of transitions from the common upper level with the theoretical calculations, carried out by I.S. Shklovskiy (Izv. Krymskoy astrofiz. observatorii, 1951, Vol.7, p. 34) for the case of a linear dipole moment and by Heaps and Herzberg (Heaps, H. S., Herzberg, G., Z. Phys., 1952, Vol. 133, p. 48) for the cases of linear and quadratic dipole moments, showed that the measured ratios are near the theoretical ones for the linear moment, but sharply diverge for the quadratic dipole moment.

L. Yerasova

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

SHEFOV, N. N., CAND PHYS-MATH SCI, "INVESTIGATION OF
NEW EMISSIONS OF THE UPPER ATMOSPHERE AT ~the~ ZVENIGOROD STA-
TION DURING THE ~IGY~ PERIOD, ~of MGG (INTERNATIONAL GEOPHYSICAL~
~YEAR)~." MOSCOW, 1961. (ACAD SCI USSR, INST OF PHYSICS
OF THE ATMOSPHERE, MOSCOW STATE UNIV IM M. V. LOMONOSOV,
STATE ATSRONOMICAL INST IM P. K. SHTERNBERG). (KL, 3-61,
205).

75

34146
S/169/62/000/001/074/083
D228/D302

3,5/20

AUTHOR: Shefov, N. N.

TITLE: Determination of the rotary temperature of the OH
               bands

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 1, 1962, 10, ab-
               stract 1G48 (V sb. Spektr., elektrofotometr. i radio-
               lokats, issled. polyarn. siyanii i svecheniya nochn.
               neba, no. 5, M., AN SSSR, 1961, 5-9)

TEXT: In determining the rotary temperature of the OH bands the
formula of first approximation was used to calculate the energy
of the rotary levels:

$$F(J'), \quad F(J') = B_{v},J'(J' + 1)$$

where B is the rotary constant of the oscillatory level v', and J'

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34146

S/169/62/000/001/074/083
D228/D302

Determination of the ...

is the rotational quantum-number. At the present time, in connec-
tion with obtaining high-grade spectra in the visible and infrared
regions of the spectrum, a more accurate determination of the ro-
tary temperature of the OH bands is possible with the use of the
band branches P, p, Q, R, and r. This requires taking into account
the magnitude of v^4 in the formula

$$I(J') = const. \times v^4 i (J') \exp\left[- F(J') \frac{hc}{kT}\right]$$

and the application of a more precise formula for calculating the
energy of the rotary levels:

$$F(J') = B_v \left[(J' + \tfrac{1}{2})^2 - 1\right] \pm \tfrac{1}{2}\sqrt{4(J' + \tfrac{1}{2})^2 + Y'(Y' - 4)}$$

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S/169/62/000/001/074/083
D228/D302

Determination of the ...

where $I(J')$ is the line intensity, v is the wave number, $i(J')$ is the intensity factor, T is the rotary temperature, h is the Planck constant, c is the speed of light, k is the Bolzman constant, $Y' = \frac{A}{B}$ and A is the separation constant of the sublevels $^2\Pi_{1/2}$ and $^2\Pi_{3/2}$ ($^2P_{1/2}$ and $^2P_{3/2}$). The application of this formula results in the derivation of lower (by approximately 8%) values for the rotary temperature than were obtained previously. The correct choice of the level of the continuous spectrum's emission-blackening is significant for determining the OH rotary temperature. The rise or lowering of the level of blackening which is the same for all lines leads respectively to the decrease or increase in the rotary temperature of the OH bands. The Bolzman distribution of the population density of the rotational levels is simultaneously infringed. Estimation of the accuracy of the measurement of blackening showed that the relative error does not exceed 5%. It is established that the divergence of the Bolzman distribution only begins when the value of the quantum rotary number is more than 6. The temperature

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Determination of the ...

34146
S/169/62/000/001/074/083
D228/D302

variation and the radiation intensity during the time of exposure should also influence the rotary temperature under measurement. It seems to be correct that the measured rotary temperature should approximately correspond to the mean value of the rotary tempera- ture for the time of exposure. A table containing the results of determination of the rotary temperatures of several bands for a number of nights is presented. /¯Abstractor's note: Complete trans- lation._7

Card 4/4

S/169/62/000/001/078/083
D228/D302

3,5120

AUTHORS: Shefov, N. N. and Yarin, V. I.

TITLE: The dependence of the rotary temperature of OH on the
               latitude

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 1, 1962, 22, ab-
               stract 1G157 (V sb. Spektr., elektrofotometr. i radio-
               lokats. issled. polyarn. siyaniy i svecheniya nochn.
               neba, no. 5, M., AN SSSR, 1961, 25-28)

TEXT: A table is given which contains data on the rotary tempe-
rature of OH bands in the airglow spectrum obtained by different
investigations. The coordinates of the observation posts, the
sighting direction, the period of observations, the spectral re-
gion, the mean temperature value, the divergence from the average
value, and the absolute error are presented in the table. The spec-
tral region refers only to those bands which were used for deter-
mining the rotary temperature. Analysis of the tabulated data in-
dicates the obvious tendency for the temperature to grow with the

Card 1/2

The dependence of ...

S/169/62/000/001/078/081
D228/D302

increase of latitude in the northern hemisphere. For the southern hemisphere there is as yet only one determination of the rotary temperature of OH bands. The processed data about OH emission include several simultaneous observations at Zvenigorod and Yakutsk. Intensities of the OH band (9.3) and rotary temperatures for purposes of comparison are inserted in the table. The average values of the intensity and rotary temperature according to several exposures at night are cited for Yakutsk. 19 references. /¯Abstractor's note: Complete translation._/

Card 2/2

S/035/62/000/009/022/060
A001/A101

AUTHOR: Shefov, N. N. —

TITLE: On population of vibrational levels in hydroxyl molecules

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 9, 1962, 63 - 64,
            abstract 9A449 (In collection: "Spektr. elektrofotometr. radiolokats.
            issled. polyarn. siyaniy i svecheniya nochn. neba, no. 6", M., AN SSSR
            1961, 21 - 27, English summary)

TEXT: The author presents the result of studying OH emission in spectra of
night sky glow, obtained at Zvenigorod (near Moscow). The range of wavelengths from
λ λ5300 to 12,500 was investigated. Intensities measured warrant a conclusion,
that the lower vibrational levels have by far larger population than in the case
of OH molecule excitation to the 9th level. Moreover, no dependence of intensity of
the (0, 3) OH band on the rotational temperature was detected, which testifies also
to the prevailing population of the lower vibrational levels, assuming that hydrox-
yl excitation proceeds as a result of ozone-hydrogen and oxygen-hydrogen reactions.
The curves expressing the dependence of logarithms of OH band intensities on the
energies G ($\mathcal{F}$) of the corresponding initial vibrational levels show, that the

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On population of vibrational levels in...

S/0 5/62/000/00 /022/0
A001/A101

measured ratios of OH band intensities of the common upper level agree well with theoretical calculations. Based on the data of several authors and those secured at Zvenigorod, intensities of all OH bands with initial vibrational levels from the third to the tenth were calculated. Transition probabilities for the linear dipole moment were made use of. The obtained values of intensities were used to determine distribution of hydroxyl molecule populations over the vibrational levels of the ground state. This distribution is well represented by Boltzman distribution. The vibrational temperature corresponding to this distribution turned out to be 9500 ± 100 K. If intensities of all OH band are known, it is possible to determine the number of molecules F_{ν} (OH) pertaining to a certain vibrational level, besides cascade transitions from the upper levels, i.e., new forming excited molecules. The absolute values of F_{ν} (OH) correspond to absolute values of hydroxyl molecule populations. An analysis of the data obtained has shown that the hypothesis on uniform flux of molecules to all vibrational levels, advanced by Chamberlain and Smith (RZhAstr, 1960, no. 5, 4229) does not agree with the data on F_{ν} (OH) distribution over vibrational levels. Moreover, there is a ground to assume that hydroxyl molecule excitation occurs mainly in lower vibrational levels. The fraction of molecules pertaining to the 9th level is small. It follows hence, that formation of excited OH molecules proceeds, apparently. simultaneously in both ozone-hydrogen

Card 2/3

On population of vibrational levels in...

S/035/62/000/009/022/060
A001/A101

reaction and oxygen-hydrogen one, the latter contribution being the main one.

L. Yerasova

[Abstracter's note: Complete translation]

Card 3/3

SHEFOV, N.N.

Notes concerning some of V.M.Morozov's conclusions on the continuum
of the airglow. Izv. AN SSSR. Ser. geofiz. no.12:1895-1897 D
'61.   (MIRA 14:12)
                        (Night sky)

S/035/62/000/006/029/064
A001/A101

AUTHOR: Shefov. N. N.

TITLE: Twilight flare of helium emission at λ 10,830 A

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 6, 1962. 60,
            abstract 6A459 ("Astron. tsirkulyar", 1961, maya 30, no. 222, 11-12)

TEXT: The author observed emission at λ 10,830 in twilight in summer 1960
and in winter 1961 at the Zvenigorod station of the Institute of Atmosphere
Physics. AS USSR. The intensity of helium emission amounts to 50 - 70% of
intensity of the blend line Q_1 of OH band (5.2), which corresponds to magnitude
- 1.000 R. The results obtained agree well with theory.

                                            M. F.

[Abstracter's note: Complete translation]

Card 1/1

SHEFOV, N. N.

" Helium in the upper atmosphere "
Report to be submitted at the IAU and IUGG Symposium on
Theoretical Interpretation of Upper Atmosphere Emissions,
Paris, France, 25-29 June 1962

1. Institute of Physics of the Atmosphere, Academy of Sciences USSR, Moscow

S/169/62/000/011/073/077
D228/D307

3.5/2 ?

AUTHORS: Mironova, L.V. and Shefov, N.N.

TITLE: Wavelengths of rotational-vibrational OH bands

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 11, 1962, 26,
                abstract 11G158 (In collection: Polyarn. siyaniya
                i svecheniye nochn. neba, no. 8, M., AN SSSR, 1962,
                11-14 (summary in Eng.))

TEXT: OH emission in airglow spectra obtained during the
IGY at Stn. Zvenigorod was investigated. A CП-48 (SP-48) spectro-
graph, a CП-50 (SP-50) spectrograph, and an image converter were
used to photograph the spectra. The spectral region $\lambda\lambda$ 5200-12500 Å
was studied. The wavelengths of the lines of the rotational-vibra-
tional bands of OH molecules were determined from several of the
best spectrograms for each band. The accuracy of determination con-
stituted ~ 0.5 Å. A table with the results of measurements is pre-
sented in the paper. The data obtained are in satisfactory agree-
ment with those of other authors. /Abstracter's note: Complete
                                           translation_/

Card 1/1

44252

S/035/62/000/012/014/064
A001/A101

3.5720

AUTHOR: Shefov, N. N.

TITLE: Helium in the upper atmosphere

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 12, 1962, 63,
             abstract 12A456 (In collection: "Polyarn. siyaniya i svecheniye
             nochn. neba, no. 8", M. AN SSSR, 1962, 50 - 65, English summary)

TEXT: Helium emission λ 10,830 was detected for the first time in an
aurora exposed to Sun's light. Other helium lines have never been detected.
This can be explained only by the hypothesis that λ 10,830 arises due to fluo-
rescence of helium atoms in the metastable state 2^3S in solar radiation. Totali-
ty of processes conditioning the observed intensity of λ 10,830 is considered.
Excitation of the metastable level 2^3S originates as a result of both electron
impact by ~25-ev electrons and several processes related to solar radiation in
resonance helium lines λ584 and λ 537. Electrons with energies of ~ 25 ev may
appear in the upper atmosphere as a result of ionization of atmospheric atoms
and molecules by electrons of energies of ~10 kev, as well as due to illumina-
tion by the Sun of the atmosphere upper layers with λ 304 radiation. A necessary

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Helium in the upper atmosphere

S/035/62/000/012/014/064
A001/A101

flux of electrons of ~10-kev energy and solar ~ 304 radiation flux are estimated to assure the observed intensity of emission λ 10,830. The amounts obtained agree with observational data. The intensity of the line λ 10,830 was calculated on the basis of solving stationary equations for helium. Results are presented as functions of electronic density and temperature. It is shown that helium emission λ 10,830 must be observed during usual twilight at the absence of auroras. The measured intensity of λ 10,830 agrees well with the calculated one (~1,000 R). There are 74 references.

N. Shefov

[Abstracter's note: Complete translation]

Card 2/2

S H E F o V , N . N .

ACCESSION NR: AT4034378

S/2662/63/000/010/0019/0023

AUTHOR: Berg, M. A.; Shefov, N. N.

TITLE: Hydroxyl emission with varying vibrational excitation

SOURCE: AN SSSR. Mezhduvedomstvennyy geofizicheskiy komitat. IV razdel programmy* MGG: Polyarnyye siyaniya i svecheniye nochnogo neba. Sbornik statey, no. 10, 1963, 19-23

TOPIC TAGS: meteorology, geophysics, aurora, nightglow, hydroxyl emission, atmospheric emission, rotational temperature, oxygen emission

ABSTRACT: The authors point out that preliminary processing of derived spectra has led to the discovery that the rotational temperatures for OH bands from vibrational levels above the sixth are systematically greater than for levels below the fifth, with these differences being particularly evident in the case of high rotational temperatures. On the basis of this fact, the conclusion is drawn that the emission of OH bands from upper and lower vibrational levels evidently occurs at different heights. Complete processing of the available material has completely supported the former results and brought to light a number of new peculiarities. The authors have, for example, found that there is apparently a closer relation between rotational temperatures of bands from levels beneath the fifth as well as for

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ACCESSION NR: AT4034378

bands from levels above the sixth. Meanwhile, the relation between the rotational temperatures from the higher and lower vibrational levels is less clearly express-ed. On the average, the temperature of bands from the fourth level is higher than for the fifth, for the third - higher than for the fourth. The temperature for bands from the sixth level is higher than for the fifth and from the seventh high-er than for the sixth. The difference in rotational temperatures for adjacent vibrational levels is, on the average, on the order of ten degrees. The result of a comparison of the intensities of different bands was very close to that ob-tained from the comparison of rotational temperatures. In the authors' opinion, this indicates that the excitation of high and low vibrational levels takes place at different heights as a result of the action of different mechanisms. Simultane-ously with the emission of hydroxyl, the authors studied the behavior of the at-mospheric emission at $(0,1)$ $\lambda 8645$ Å due to the O_2 molecule. A comparison of the intensities and rotational temperatures of the O_2 and OH emissions shows a clear tendency for the intensity of one of them to increase as the other increases. Here too, the relation is most clearly expressed for the higher levels. These data indicate that the radiation $(0,1)$ O_2 occurs in the overall process together with the hydroxyl emission. Seasonal variations in the intensity and rotational temperature for the $(4,1)$ OH band are also considered. The temperature was found to reach maximum values (on the order of 240 K) during the winter months and mini-

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ACCESSION NR: AT4034378

mum values (about 160 K) during the summer months. The mean seasonal variations of intensity are less clearly expressed. Orig. art. has: 7 figures.

ASSOCIATION: Mezhduvedomstvennyy geofizicheskiy komitet AN SSSR (Interdepartmental Geophysical Committee, AN SSSR)

SUBMITTED: 00

SUB CODE: ES

DATE ACQ: 13May64

NO REF SOV: 008

ENCL: 01

OTHER: 003

Card   3/4

ACCESSION NR: AT4034382   S/2662/63/000/010/0056/0064

AUTHOR: Shefov, N. N.

TITLE: Crepuscular behavior of helium emission at 10,830 Angstroms

SOURCE: AN SSSR. Mezhduvedomstvennyy*y geofizicheskiy komitet. IV razdel
programmy* MGG: Polyarny*ye siyaniya i svecheniye nochnogo neba. Sbornik statey,
no. 10, 1963, 56-64

TOPIC TAGS: meteorology, geophysics, aurora, helium emission, crepuscular
behavior, solar radiation flux, helium fluorescence

ABSTRACT: The author has calculated the conditions for excitation of emission at
10,830 A at different heights of the atmosphere and for different angles of
depression of the Sun. With the help of these calculations, the solar radiation
flux at $\lambda < 304$ A has been determined from experimental data for the 1959 - 1962
period. Comparison of these data with solar activity indicates that there tends
to be a relation between the two. The occurrence of crepuscular emission at
10,830 A is caused by the resonance fluorescence of helium atoms in the metastable
2^3S state in solar radiation. Excitation of the helium 2^3S state in the upper
atmosphere takes place, basically, as a result of the following processes:

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ACCESSION NR: AT4034382

excitation of electrons with energy levels of about 25 ev; excitation caused by
solar radiation in the helium lines at 584 and 537 A; recombination. With no
auroral conditions present, helium excitation in the 2^3S state is most likely
caused by photoelectrons, generated during the ionization of atoms and molecules
by solar radiation with $\lambda \leqslant 304$ A. This mechanism will operate, principally, at
heights from 400 to 1,300 km. Excitation of the 2^3S state, caused by solar
radiation at 584 A, will take place at heights on the order of 1,000 km and
above, since the atmospheric layer in the center of the 584 A line will be
optically thick. Since ultraviolet solar radiation plays an important part in
the excitation process of helium emission at 10,830 A, the investigation of this
emission makes it possible to observe, from the Earth, solar radiation at 304 and
584 A. The problem of averaging the intensity during the exposure in the photo-
graphic recording of emission at 10,830 A is discussed by the author and a method
is explained for taking into consideration this peculiarity of crepuscular
phenomena in order to determine the intensity of the ultraviolet radiation of the
Sun. By means of the formula derived

$$\frac{dI}{dh} = \Phi A n_0 \sec \theta \frac{\sum\limits_k \sigma_\psi^k n_\kappa (h)}{\sum\limits_i \sigma_c^i n_i (h)} \exp\left[-\tau (h, \Delta Z_\odot)\right]. \qquad (3)$$

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ACCESSION NR: AT4034382

the distribution of the intensity I of the glow of emission at 10,380 A, divided
by ∅ (ultraviolet radiation flux of the Sun), as a function of height for
different angles of depression of the Sun, was calculated with and without
consideration of the effective deactivation cross sections for different tem-
peratures in the upper atmosphere. The author found that, while the emergence of
metastable helium atoms under normal twilight conditions is caused principally by
electrons arising during the photoionization of atoms and molecules by solar
radiation at λ ≮ 304 A, the character of the variation of the helium emission
intensity, during the crepuscular period, is a function of the upper atmospheric
temperature. This temperature, meanwhile, is determined by the intensity of the
adsorbed ultraviolet radiation of the Sun - mainly at λ≮ 304 A. On the basis of
observations carried out in Zvenigorod, the spectral region near 10,830 A was
regularly photographed from 1959 through 1962. The calculated values of the
flux ∅ of the solar radiation at 304 A were compared with data on solar activity -
with the area of calcium flocculi S, spots S' and Wolf numbers W. The author
discovered a sharply-defined tendency of the intensity of emission at 10,830 A to
increase as the solar activity increases. Variations in the density of the
upper atmosphere and other excitation mechanisms were not taken into considera-
tion. Moreover, it is noted that solar activity data based on observations in
the visible part of the spectrum apparently do not entirely reflect activity in the

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ACCESSION NR: AT4034382

ultraviolet region, since they correspond to a local increase in the intensity
of the radiation, and not to the emission (radiation) from the entire disk of
the Sun. Orig. art. has: 7 figures and 5 formulas.

ASSOCIATION: Mezhduvedomstvenny*y geofizicheskiy komitet AN SSSR (Interdepart-
mental Geophysical Committee, AN SSSR)

SUBMITTED: 00   DATE ACQ: 13May64   ENCL: 00

SUB CODE: ES   NO REF SOV: 012   OTHER: 018

Card 4/4

KONONOVICH, E.V.; SHEFOV, N.N.

Variations in the ultraviolet solar radiation and the excitation of emissions in the spectrum of twilight luminescence. Geomag. i aer. 3 no.1:3-9 Ja-F '63.

(MIRA 16:4)

1. Institut fiziki atmosfery AN SSSR i Gosudarstvennyy astronomicheskiy institut imeni P.K.Shternberga.

(Solar radiation)   (Night sky)

Shefov, N.N. and Truttse, Yu.L.; Krasovskiy, V.I.

"On the mechanism of maintenance of Nocturnal Ionosphere."

Report submitted for the COSPAR Fifth International Space Science Symposium,
Florence, Italy, 8-20 May. 1964

L 46918-66   EWT(1)/FCC   GW

ACC NR: AR6015225   SOURCE CODE: UR/0269/65/000/012/0059/0059

AUTHOR: Shefov, N. N.

TITLE: Correlations between upper atmospheric emissions

SOURCE: Ref. zh. Astronomiya, Abs. 12.51.448

REF SOURCE: Sb. Polyarn. siyaniya i svecheniye nochn. neba. No. 11, M., Nauka, 1965, 43-47

TOPIC TAGS: atmospheric emissions, upper atmospheric emission

ABSTRACT: The correlations existing between the various parameters of upper atmospheric emissions are sometimes obscured by other phenomena, whose modifications are of a different nature. Interferences from them are more easily eliminated by using correlations based on specific hypotheses rather than on empirical data; this, moreover, provides the possibility of conducting purposeful experiments. [Translation of abstract]   [SP]

SUB CODE: 04, 20/
Card 1/1 fv   UDC: 551.593.5

L 15917-66   ENT(1)/FCC   GW

ACC NR: AR6015226   SOURCE CODE: UR/0269/65/000/012/0059/0059

/9

AUTHOR: Shefov, N. N.

B

TITLE: Upper atmospheric emissions and noctilucent clouds

SOURCE: Ref. zh. Astronomiya, Abs. 12.51.449

REF SOURCE: Sb. Polyarn. siyaniya i svecheniye nochn. neba. No. 11, M.,
Nauka, 1965, 48-51

TOPIC TAGS: atmospheric emission, noctilucent cloud

ABSTRACT: Observations made at Zvenigorod during the period of 9—14 July
1962 showed that minimum intensity and minimum rotating temperature of OH
and O_2 emissions occur on the night following the appearance of noctilucent clouds.
Further observations are necessary to confirm this relationship. There are
28 bibliographic references. [Translation of abstract]   [SP]

SUB CODE: 03, 04, 20/

UDC: 551.593.5

Card 1/1   fv

L 46916-66   EWT(1)/FCC   GW

ACC NR: AR6015227   SOURCE CODE: UR/0269/65/000/012/0059/0059

AUTHOR: Shefov, N. N.

TITLE: Radiation of inert gases in the atmosphere

SOURCE: Ref. zh. Astronomiya, Abs. 12.51.451

REF SOURCE: Sb. Polyarn. siyaniya i svecheniye nochn. neba. No. 11. M., Nauka, 1965, 65-69

TOPIC TAGS: twilight atmospheric radiation, auroral radiation intensity, atmospheric argon, radiation intensity, atmospheric neon

ABSTRACT: A [theoretical] evaluation is made of the intensity of Ar and Ne lines in the atmosphere at twilight and in auroras illuminated by the Sun. When Ar and Ne atoms are excited by electron impact followed by the fluorescence of forming metastable atoms, the anticipated intensity of argon lines is approximately 0.1 R at twilight and 10 R in auroras. The intensities of the Ne lines are much lower. These values depend on the accuracy of the values taken for the concentra-

UDC: 551.593.5

Card 1/2

L h691.6-66

ACC NR: AR6015227

tion of Ar and Ne in the atmosphere. At the present time, these radiations have not yet been observed. There are 18 bibliographic references. [Translation of abstract]

[SP]

SUB CODE: 03, 04/

fv

Card 2/2

L 42106-66   FBD/EWT(1)/FCC   GW/WS-2

SOURCE CODE: UR/0030/66/000/006/0083/0084

ACC NR: AP6021961

66
64
B

AUTHOR: Shefov, N. N. (Candidate of fiziko-mathematical sciences)

ORG: none

TITLE: Investigations on physics of the upper atmosphere

SOURCE: AN SSSR. Vestnik, no. 6, 1966, 83-84

TOPIC TAGS: physics conference, atmospheric physics, aurora, ionospheric absorption, ionospheric disturbance, ionospheric inhomogeneity, atmospheric probe

ABSTRACT: An annual conference on upper-atmosphere physics was held 22-26 March 1966 in Apatity by the Institute of Physics of the Atmosphere and the Polar Geophysical Institute of the Kola Branch of the Academy of Sciences of the USSR. The reports dealt with upper-atmosphere investigations using ground methods during quiet atmospheric states and during auroras. Reports stressed the success of rocket and satellite investigations in the upper atmosphere and also the necessity of ground investigations of the ionosphere, the magnetic field, and the intensity of upper-atmospheric radiation. The majority of reports was devoted to auroras, analyzing the electron acceleration during aurora formation.

Scientists of the Polar Geophysical Institute reported on the polar ionosphere and the morphology of auroras. The energy of magnetic storms in the initial phase is equal to 10^{22} ergs and in the main phase, 10^{23} ergs. The electron density in the polar ionosphere up to 180 km was found to be

Card 1/2

L 42106-66

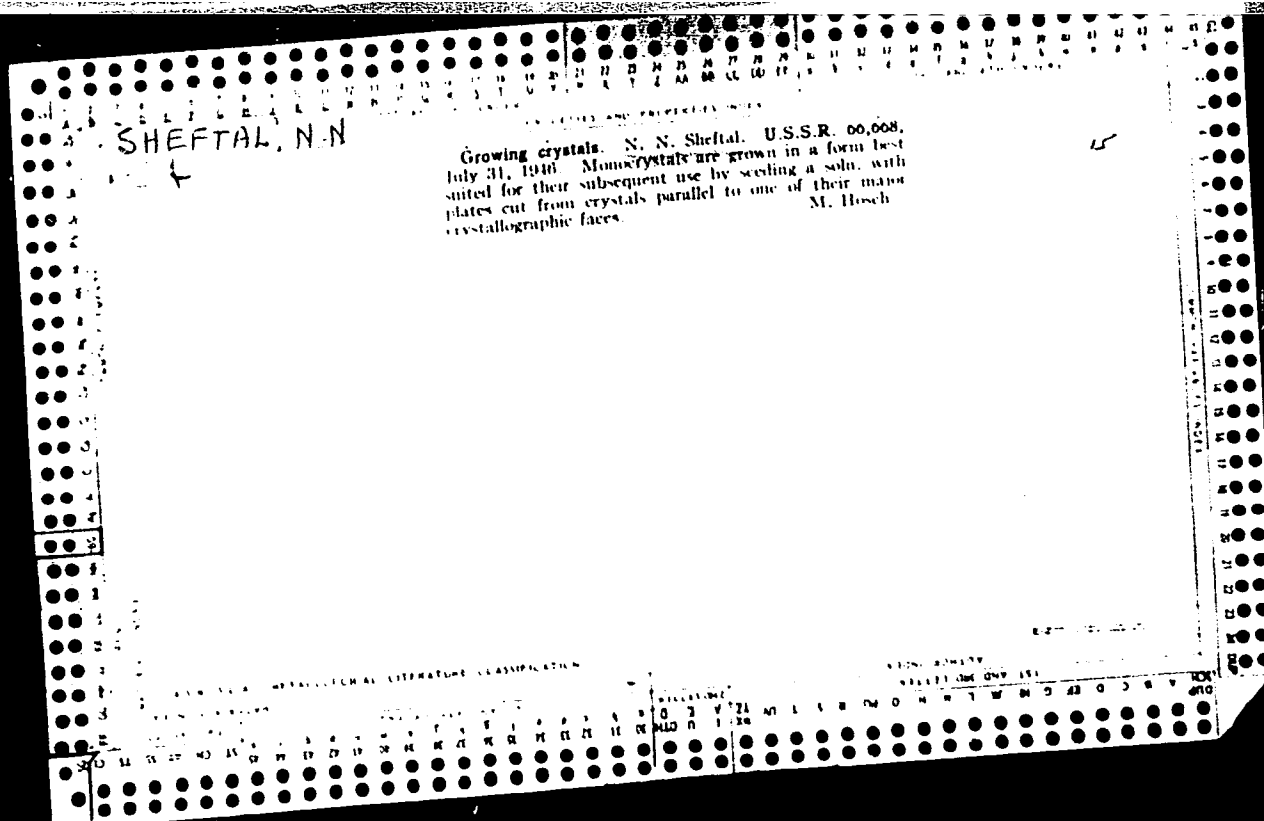ACC NR: AP6021961   2.

stable. An ultralow upper-atmosphere radiation frequency in the
1—30 kc range was measured and its spectral distribution was found
to depend upon the position of the aurora in the sky. The spectral in-
tensity of the ultralow frequency has a minimum at 4 kc.   The position
of the radiation sources was determined by observations from conjugated
points on the earth.

    Absorption of cosmic radiation and signals of artificial satellites
in the ionosphere were studied at heights from 150 to 700 km. Ionospheric
heterogeneities were measured and their sizes were up to 1.5 km wide.
The drift velocity in the ionosphere sometimes attained 400 km/sec. The
behavior of OH during twilight was studied, and hydrogen was found to
exist at altitudes higher than 500 km. [ATD PRESS: 5035-F]

SUB CODE: 04, 05 / SUBM DATE: none

Card 2/2 af

SHEFTAL, N.N

Growing crystals. N. N. Sheftal. U.S.S.R. 00,008, July 31, 1946. Monocrystals are grown in a form best suited for their subsequent use by seeding a soln. with plates cut from crystals parallel to one of their major crystallographic faces. M. Hosch

SHEFTAL, N.N.

Growth "accessories" in crystals. N. N. Sheftal.
Trudy Inst. Krist. 1947, No. 3, 55-70; *Chem. Zentr.*
(Russian Zone Ed.) 1948, I, 708; cf. C.A. 37, 548⁶.—The
"accessories" of crystal growth are classified
following to their morphology: Lines caused by stratified
according to their morphology; growth pits; marks or traces of
growth; subindividuals; deposits (as from suspended
unequal rate of growth; deposits (as from suspended
matter); vicinal formations; and streaks. The origin of
such formations is explained on the basis of the mol.
theory of crystal growth. The relation between such
phenomena and the internal nonhomogeneity of the crystal
is discussed. Inhomogeneities in sucrose crystals. N.
N. Sheftal. *Ibid.* 71-80; *Chem. Zentr.* (Russian Zone
Ed.) 1948, I, 819; cf. C.A. 37, 548⁶.—In expts. on the
growth of large single crystals the various types of in-
homogeneity were studied. They are classified as those
which are accidental (due to foreign inclusions, temp.
changes, etc.) and those due to the process of growth.
Cracks due to temp. changes can be prevented if the
crystals are removed from the warm mother liquor quickly
and placed immediately in petroleum of the same temp.
and then allowed to cool in the petroleum. Flaws due to
growth processes (cf. preceding abstr.) are discussed.
M. G. Moore

SHEFTAL, N.N.

The static method of growing monocrystals from solutions (scientific
and practical results). Trudy Inst. Krist., Akad. Nauk S.S.S.R. 4,
231-3 '48.
(CA 47 no.13:6209 '53)

/ Real growth of crystals. N. N. Sheftal. *Rost Kristal-
lov, Akad. Nauk S.S.S.R. Inst. Krist.; Doklady Sove-
shchaniya* 1956, 5-31 (Pub. 1957).—A crit. review of factors
affecting the crystn. process (degree of assocn., presence of
admixts., crystn. pressure) and the mechanism of crystn.
under conditions of equil., forms, and the soly. of crystals.
Numerous photographs of various crystals during different
stages of formation and diagrams are given.   A. P. Kotloby.

SHEFTAL, N.N.

The genesis of piezoquartz deposits considering the data on growing artificial quartz. N. N. Sheftal. Voprosy Geokhim. i Mineral., Akad. Nauk S.S.S.R., Otdel. Geol.- Geograf. Nauk 1956, 142-57.—Numerous published methods for growing artificial quartz crystals are given. S. points out that the importance of pressure changes for formation of quartz is clearly demonstrated by these studies. Different types of piezoquartz deposits are described. — A. V.

SHEFTAL, N.N.

Category : USSR/Solid State Physics - Morphology of Crystals. Crystallization   E-7

Abs Jour : Ref Zhur - Fizika, No 2, 1957 No 3908

Author   : Sheftal', N.N.
Title   : Problems in Crystal Growth (Conference at the Institute of Crystallo-
           graphy).

Orig Pub : Vestn. AN SSSR, 1956, No 5 96-98

Abstract : No abstract

Card   : 1/1

USSR/Cosmochemistry - Geochemistry. Hydrochemistry.   D.

Abs Jour   : Ref Zhur - Khimiya, No 9, 1957, 30403

Author   : Sheftal', N.N.
Inst   : Institute   Crystallography, Academy of Sciences USSR
Title   : Gaseous-Liquid Inclusions in Quartz as Geothermometers
               and Geomanometers (Consideration of Ideal Case of
               Primary Gas-Liquid Inclusion).

Orig Pub   : Tr. In-ta krostallogr. AN SSSR, 1956, No 12, 111-118

Abst   : Consideration of the ideal case of primary gas-liquid
               inclusion, constituting the foundation of the homogena-
               tion method of N.P. Yermakova, shows that by this me-
               thod it is not possible to determine crystallization
               temperature T_{cr} of synthetic quartz. On crystalliza-
               tion in an autoclave, from dilute mineral-forming solu-
               tions, the homogenization temperature, T_h, is the tem-
               perature of formation, throughout the entire bulk, of
               uniform phase, and $T_{cr} > T_h$. The excess of $T_{cr} - T_h$

Card 1/2

USSR/Cosmochemistry - Geochemistry. Hydrochemistry.   D.

Abs Jour   : Ref Zhur - Khimiya, No 9, 1957, 30403

depends on the degree of under-saturation of the initial
solution with the substance of the most difficultly so-
luble crystal that has become formed within the inclusion.
The method records lowering of density as increase in
T_{cr} if the latter is determined on the basis of T_h.

Card 2/2

SHEFTAL, N. N., KOKORISH, N. P., SHAMBO, N.A.

Institute of Crystallography, Acad. So., Moscow, "Some Peculiarities in Crystallization of Silicium and Germanium Films and Silicium Single Crystals" (Section 14-8) a paper submitted at theGeneral Assembly and International Congress of Crystallography 10-19 Jul 57, Montreal, Canada.

C-3,800,199

ZHELUDEV, I.S., kandidat fiziko-matematicheskikh nauk; SHUVALOV, L.A.;
SHUBNIKOV, A.V., akademik, otvetstvennyy redaktor; SHEFTAL', N.N.,
doktor geologo-mineralogicheskikh nauk, otvetstvennyy redaktor;
KUZNETSOVA, Ye.B., redaktor izdatel'stva; POLYAKOVA, T.V.,
tekhnicheskiy redaktor

[Crystal growth; reports at the First Conference on the Gorwth of
Crystals (March 5-10, 1956)] Rost kristallov; doklady na pervom
soveshchanii po rostu kristallov (5-10 marta 1956 g.). Moskva,
1957. 374 p.   (MLRA 10:8)

1. Akademiya nauk SSSR. Institut kristallografii.
    (Crystallization)

Sheftal; NN.

Distr: 4E2c/4E4c

Monocrystals of germanium and silicon with a predeter-
mined content of impurities. N. N. Sheftal', A. V. Kra-
silov, and N. P. Kokorish. U.S.S.R. 107,450, Sept. 25, 1957.
Addnl. films of Ge or Si with a predetd. content of admixts,
are grown on Ge or Si crystals. The secondary growth is
achieved by crystn. from the gaseous phase. Crystals thus
obtained are for use in semiconductor app. and similar pur-
poses.
                                                M. Hoseh

Sheftal, N.N.

Monocrystals. S. K. Popov and N. N. Sheftal. U.S.-S.R. 108,256, Oct. 25, 1957. Monocrystals for optical, piezoelec., or other purposes are grown in a seeded crystallizer. The latter is imparted a random motion in relation to the crystal. This is accomplished by reversing the rotation of the crystallizer in a horizontal or vertical plane with complete stoppage in between. The monocrystals are grown from melts or from gaseous media. When crystn. is accomplished from a soln. and a gaseous phase in the same crystallizer, several crystals are obtained.   M. Hrseh

SHEFTAL, n. n.

Growing monocrystals, N. N. Sheftal and S. K. Popov.
U.S.S.R. 108,804, Nov. 25, 1957. Addn. to U.S.S.R.
108,256. The random motion of the medium in which the
crystals grows is brought about by reversible rotation of
either the crystal carrier or a stirrer.   M. Hoseh

SHEFTAL, N.N.

Distr: 4E3d

Growing of homogeneous Seignette salt crystals from supersaturated solutions. N. V. Alyavdin, N. N. Sheftal, and Z. I. Frolova. *Kristallografiya* 2, 193-8 (1957).—In order to increase the growth rate of Seignette salt (I) crystals, high supersatn. and elevated temps. are needed. But above 41° I solns. begin to dissoc. into the separate Na and K tartrates. At 55° the decompn. is complete. The reason for the decompu. is the presence of tartrate seeds. In supersatd. solns., heated above 100° for a certain (not specified) time, the seeds are destroyed, and such solns. produce fast-growing I crystals in the temp. interval 41-55°. At 52.5° single crystals, up to 971 g., were grown within 63 hrs. Normally, such crystals require 12-13 days. The fast-grown crystals are elongated parallel to the c-axis.

E. Ryshkewitch

70-3-20/20

AUTHOR: Shamba, N.A. and Sheftal, N.N.

TITLE: Spiral growth of silicon crystals (Spiral'nyy rost kristallov kremniya)

PERIODICAL: "Kristallografiya" (Crystallography), 1957,
             Vol.2, No.3, pp. 441 - 444 (U.S.S.R.)

ABSTRACT: This is a preliminary communication and the results are
           given relating to certain morphological features of the growth
           of silicon crystals. The authors established that in the
           growth of these crystals, the macro-size spiral formations play
           an important rôle. They found that large silicon acicules of
           6 to 7 cm length represent a strongly-stretched spiral of
           pyramid cross-section. The experiments covered growth of
           crystals, growth of silicon crystals from the melt in a crucible,
           spiral growth of mono-crystals of silicon drawn out from a
           melt at a speed of 1 mm/min and spiral growth in the case of
           crystallisation from the gaseous phase. They found that even
           in the case of crystallisation from the gaseous phase, a macro-
           spiral form of growth of the crystals occurred.
               Acknowledgments are made to B.P. Mitrenin , V.I. Khachish-
           vili and Dr.Ye.Ye. Rekser . There are 11 figures and photo-
           graphs and 1 German references.

Card 1/1

SUBMITTED: October 23, 1956.
AVAILABLE: Library of Congress

Sheftal', N.N.

AUTHOR: SHEFTAL',N.N., KOKORISH,N.P., KRASILOV,A.V.   PA - 2359
TITLE: The Crystallization of Monocrystalline Layers of Silicon and
         Germanium from the Gaseous phase. (Kristallizatsiya monokristal-
         licheskikh sloyevkremniya i germaniya iz gazovoy fazy, Russian).
PERIODICAL: Izvestiia Akad. Nauk SSSR, Ser. Fiz., 1957, Vol 21, Nr 1,
         pp 146 - 152 (U.S.S.R.)
         Received: 4 / 1957   Reviewed: 5 / 1957

ABSTRACT: The present work investigates only the crystallization of silicon
         on silicon and germanium on germanium. According to a general sur-
         vey of the problem the carrying out of the experiments is de-
         scribed. These experiments concerning pickling and breeding of
         non-orientated and orientated silicon- and germanium crystals
         disclose the real structure and the growth mechanism of these
         crystals.

         Some conclusions: Crystallization from the gas phase is important
         for the production of monocrystalline layers with assumed constants
         or variable composition. Especially plane p-n transitions can be
         obtained in this manner. Crystallization of silicon and germanium
         at atmospheric pressure is obtained in the best and most simple
         manner by the decomposition of $SiCl_4$ and $GeCl_4$ in hydrogen at
         high temperatures. A monocrystalline growth of fragments of a
Card 1/2 micron of up to 200μ and a breeding surface of up to $2,5$ cm^2

PA - 2359

The Crystallization of Monocrystalline Layers of Silicon and Germa-
nium from the Gaseous Phase.

was obtained for germanium. The practical suitability of the
method was confirmed by the successful production of plates. These
plates are suited for the production of triodes of the type
p-n-i-p. On the occasion of crystallization from the gaseous
phase at atmospheric pressure, growth not only takes place by
means of single atoms or atom groups, but also by means of very
small crystals. In spite of this fact the lattices thus produced
possess a degree of perfection which is sufficient for technical
purposes.   (9 illustrations).

ASSOCIATION: Institute for Chrystallography of the Academy of Science of the
              U.S.S.R.
PRESENTED BY:
SUBMITTED:
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Card 2/2